

Return on Investment (ROI) Program Funding Application

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FINAL AUDIT REQUIRED: The Enterprise Quality Assurance Office of the Information Technology Department is required to perform post implementation outcome audits for all Pooled Technology funded projects and may perform audits on other projects.

This is a Pooled Technology Fund Request. Amount of funding requested: \$658,623.00

Section I: Proposal

Date:	7/12/2004
Agency Name:	Department of Administrative Services
Project Name:	Enterprise Data Warehouse
Agency Manager:	David Meyers
Agency Manager Phone Number / E-Mail:	(515)725-0411 / david.meyers@itd.state.ia.us
Executive Sponsor (Agency Director or Designee):	Mollie Anderson

A. Project Summary

Describe the nature and use of the proposed project, including what is to be accomplished, how it will be accomplished, and what the costs and benefits will be.

Response:

The Teradata Enterprise Data Warehouse (EDW) creates a commonality across a platform, establishing the ability to directly link data from multiple agencies in common use applications. Each agency maintains authority over its data, assuring the integrity and security of who and how the information is accessed, utilizing diverse external and internal databases to answer key business questions. This project includes partners from different agencies using the Teradata EDW (Department of Revenue, Division of Criminal and Juvenile Justice Planning, Department of Human Rights, Department of Corrections, and Department of Administrative Services) to improve the efficiency and effectiveness of state government. This project has provided a number of significant accomplishments and benefits for each participating agency. A high level summary of the overall agency benefits is highlighted below. Following the summary is a more detailed project summary from each of the agencies. • Increased tax revenues exceeding \$40,000,000 through FY 2004 • Projected tax revenues of at least \$10,000,000 annually • Reduced costs through improved efficiencies and enhanced processes • Enhanced customer service • Data integration and analysis supporting the development of over 200 business reports • Improved justice community through enhanced information sharing Criminal and Juvenile Justice Planning (CJJP)/Department of Corrections

Project Summary: The overall mission of the JDW is to provide the judicial, legislative and executive branches of State Government, and other entities, with improved statistical and decision support information pertaining to justice system activities. The Justice Data Warehouse (JDW) is a central repository of key criminal and juvenile justice information from the Iowa Court Information System (ICIS) and information from the Iowa Correctional Offender Network (ICON) system. These two disparate databases can be linked to provide additional analytical power to justice system decision-makers. In addition, the JDW allows queries of the individual systems to be made more quickly, efficiently and accurately. Plans are in progress to add data from the Department of Human Services on system-involved youth. This will enable CJJP, DHS and local providers to begin the process of tracking service needs of youth, and outcomes across systems of care.

Department of Revenue (DOR) Project Summary: The Department of Revenue implemented the Tax Gap Compliance Program to support the department's mission to accurately collect all tax owed to the State of Iowa. Through the development and implementation of the Enterprise Data Warehouse, the Tax Gap Compliance Program has successfully

generated \$40,000,000 in additional tax revenues through FY 2004. The program will continue to build a strong revenue stream with anticipated revenues of at least \$10,000,000 annually. The integrated database structure enables the matching of data from diverse source systems to perform sophisticated queries with drill-downs to analyze the data to identify and generate improved and more accurate tax gap leads. Through enhanced modeling, the department can better measure tax non-compliance issues and better understand the reasons for non-compliance, providing opportunities to improve customer communication, education, and services. The department continues to enhance the database model through the integration and utilization of new external source systems. The department's application and utilization of the Enterprise Data Warehouse has received national and international recognition and awards as a best practice and innovative application. Department of Administrative Services (DAS) Project Summary: The Department of Administrative Services is responsible for coordinating and providing project management and support for Iowa's Criminal Justice Information System (CJIS) Integration Initiative. The problem being addressed by justice integration is well known. Criminal justice information systems have been developed in isolation of one another. This results in independent systems that may share many common data concepts but makes communication or the exchange of information cumbersome or even impossible to achieve. This initiative is intended to apply information technology solutions to enable the timely and efficient sharing of information within and between criminal justice agencies. It will provide the ability to input and seamlessly access and share critical information at key decision points throughout the justice process. This includes horizontal information sharing between justice agencies within a jurisdiction or certain levels of government as well as vertical information sharing between agencies at the local, state and federal levels. The Justice Data Warehouse is an essential component of Iowa's CJIS initiative since it will provide the mechanism to capture critical information contained in an integrated justice system and provide for the ability to statistically analyze relevant information which will greatly improve decision-making, policy development and program evaluation.

B. Strategic Plan

How does the proposed project fit into the strategic plan of the requesting agency?

Response:

This project meets the following goals of the State of Iowa: 1) Common platform with common data standards across state agencies for mutual sharing of data and information to improve the overall service State government provides its citizens. 2) Provides a mechanism to retrieve data needed by agencies to meet the requirements of the Accountable Government Act and administer the States laws, rules, and regulations. 3) Mutual support of similar activities between ITE and state agencies. 4) Maximizes use of limited assets and manpower. 5) Supports database decision-making to achieve optimal results for Iowans, and 6) Provides safer communities in which to live, work, and raise a family. Department of Revenue Strategic Plan: The Department of Revenue mission is: "To serve Iowans and to support government services in Iowa by collecting all tax required by law, but no more." The data warehouse project significantly supports DOR's mission and strategic plan by: • Collecting all taxes required by law, but no more • Enhancing tax compliance programs and processes • Improving customer services, education, and communications to promote voluntary compliance • Expanding the scope and analytical capabilities of tax research and program analysis CJJP Strategic Plan: This project supports the following goal from CJJP's strategic plan: "Improve the support for data based decision-making in the criminal and juvenile justice system.

C. Current Technology

Provide a summary of the technology used by the current system. How does the proposed project impact the agency's technological direction?

Response:

The Teradata EDW is divided into the following sections; a. World Mark 4800 Server. This is the hardware that is used and it comprises two (2) processing nodes, each with 4 processors and 2 gigabytes of ram and an integrated disk array with a total capacity of 720 gigabytes with RAID 1 making only 360 gigabytes of storage capacity available. Of the 360 gigabytes, approximately 40 gigabytes is used for system files and management purposes. The remaining 320 gigabytes is used for database storage and spool space. b.

MP-RAS Unix. This is the Server operating system. Currently, the configuration of the Server OS is maintained through the State's annual maintenance agreement. This is also referred to as the system OS.

c. Teradata RDBMS – This is the database operating system and is designed to run on the World Mark 4800 running MP-RAS UNIX. The State is licensed to run Teradata RDBMS on two processing nodes. Teradata RDBMS, as the database OS, is jointly maintained by ITE and the State's annual maintenance provider. The Teradata RDBMS is also referred to as the Application Operating System or Application OS.

d. The EDW has grown steadily in the past five years, and there is a need for new hardware. We would be moving from a World Mark dual node system to a faster, single node system, while almost tripling the available disk space, and reducing maintenance costs. The way technology is improving, the implementation of the Criminal Justice Information System, and the impact that the EDW has had for the State of Iowa, we see this change a necessity for the future.

D. Statutory or Other Requirements

Is this project or expenditure necessary for compliance with a Federal law, rule, or order?

☒ YES (If "Yes", cite the specific Federal law, rule or order, with a short explanation of how this project is impacted by it.)

Explanation:

The U.S. Department of Justice has a major initiative in process dealing with the integration of criminal justice information systems at the state level. This project will expand on the steps already taken by Iowa to reach the goal of a fully integrated statewide criminal justice information system. Additionally, the Crime Identification Technology Act, Public Law 105-251, authorized federal grants for states to promote the integration of justice system information and identification technology. The National Governor's Association and the National Center of State Courts encourage and support the integration of criminal justice information systems.

The data warehouse configuration and physical model supports C2 security standards and requirements in accordance with state and federal regulations set forth in the Internal Revenue Service Publication 1075, Tax Information Security Guidelines for Federal, State, and Local Agencies. The EDW model includes business rules supporting Internal Revenue Service Code Sections 6103(2), 6103(b), 7213, 7213A, and 7431 and the State of Iowa Code Sections 422.20, 422.72 and 452A.63.

Is this project or expenditure required by state law, rule or order?

☒ YES (If "YES", cite the specific state law, rule or order, with a short explanation of how this project is impacted by it.)

Explanation:

IA Code 216A.136 and IA Code 216A.138 requires CJJP to use databases maintained by justice system agencies to provide data and analytical information to federal, state and local governments; assist agencies in the use of criminal and juvenile justice data; and track progress of juveniles through various state and local agencies and programs. The JDW enables CJJP to fulfill this function more fully, and at less cost to both CJJP and the agencies required to share data.

Iowa's Criminal Justice Information System (CJIS) Memorandum of Understanding signed by the Governor and the Chief Justice establishes the process to guide the design, development and implementation of a statewide-integrated criminal justice information system that will enable automated information sharing in a common format between state, local, and federal criminal justice agencies. The data warehouse configuration and physical model supports C2 security standards and requirements in accordance with state and federal regulations set forth in the Internal Revenue Service Publication 1075, Tax Information Security Guidelines for Federal, State, and Local Agencies. The EDW model includes business rules supporting Internal Revenue Service Code Sections 6103(2), 6103(b), 7213, 7213A, and 7431 and the State of Iowa Code Sections 422.20, 422.72 and 452A.63.

Does this project or expenditure meet a health, safety or security requirement?

☒ YES (If "YES", explain.)

Explanation:

As a significant component of the State's CJIS initiative, this project meets a variety of health, safety and security needs. Integrated systems improve the quality of information and thereby: improves public safety, eliminates data entry errors and redundant data entry, provides complete, current and timely data, improves the ability to evaluate policy decisions and law changes, maximizes available resources, improves data response time, provides for better, more informed decision making, improves the operational effectiveness of existing systems and reduces recidivism.

The data warehouse configuration and physical model supports C2 security standards and requirements in accordance with state and federal regulations set forth in the Internal Revenue Service Publication 1075, Tax Information Security Guidelines for Federal, State, and Local Agencies. The EDW model includes business rules supporting Internal Revenue Service Code Sections 6103(2), 6103(b), 7213, 7213A, and 7431 and the State of Iowa Code Sections 422.20, 422.72 and 452A.63.

Is this project or expenditure necessary for compliance with an enterprise technology standard?

☒ YES (If "YES", cite the specific standard.)

Explanation:

The Teradata Enterprise Data Warehouse (EDW) creates a commonality across a platform with standardized data definitions, establishing the ability to directly link data from multiple agencies in common use applications. Each agency maintains authority over its data, assuring the integrity and security of who and how the information is accessed. This enterprise project provides the platform for utilizing multiple diverse external and internal databases to answer key business questions and determine areas of non-compliance to state laws, rules, and regulations.

At the time of implementation, ITE directed the participating agencies to partner in the design and development of one common platform.

[This section to be scored by application evaluator.]

Evaluation (20 Points Maximum)

If the answer to these criteria is "no," the point value is zero (0). Depending upon how directly a qualifying project or expenditure may relate to a particular requirement (federal mandate, state mandate, health-safety-security issue, or compliance with an enterprise technology standard), or satisfies more than one requirement (e.g. it is mandated by state and federal law and fulfills a health and safety mandate), 1-20 points awarded.

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E. Impact on Iowa's Citizens

a. Project Participants

List the project participants (i.e. single agency, multiple agencies, State government enterprise, citizens, associations, or businesses, other levels of government, etc.) and provide commentary concerning the nature of participant involvement. Be sure to specify who and how many **direct** users the system will impact. Also specify whether the system will be of use to other interested parties: who they may be, how many people are estimated, and how they will use the system.

Response:

This is an enterprise project sponsored by several agencies to support and maintain an enterprise data warehouse platform. Criminal and Juvenile Justice Planning (CJJP) Division of the Department of Human Rights, Department of Revenue (DOR), Department of Corrections (DOC), Department of Administrative Services/ITE and the Iowa Judicial Branch are partner agencies and/or data contributors.

The Division of Criminal and Juvenile Justice Planning, through the Justice Data Warehouse (JDW) is a central repository of key criminal and juvenile justice information from the Iowa Court Information System (ICIS) and information from the Iowa Correctional Offender Network (ICON) system. The JDW is providing data, analysis and others services to the judicial, legislative and executive branches of State Government for decision support pertaining to justice system activities.

CJJP is collaborating with the Iowa Judicial Branch, the Information Technology Enterprise, Department of

Public Safety, Department of Corrections, the Department of Transportation, and other criminal justice entities to provide information from the data warehouse to help support Iowa's Criminal Justice Information System (CJIS) initiative. The goal of CJIS is to provide a statewide-integrated criminal justice information system to enable the timely and efficient sharing of information within and between criminal justice agencies.

The Department of Corrections is in the final stages of a pilot project with Polk County to exchange real time data for offender charges, arrests, and supervision status. This project allows the data entry at point of contact and eliminates duplicate data entry between agencies. It allows for timely tracking of offenders, and re-offenders would be identified and reviewed to ensure public safety. In October 2004, the prison data, including medical information and key data from the Board of Parole, will be added to the data warehouse, increasing the amount of information available for use.

The Department of Revenue implemented the Tax Gap Compliance Program to support the departments mission to accurately collect all tax owed to the State of Iowa. Through the development and implementation of data warehousing, the Tax Gap Compliance Program has successfully generated \$40,000,000 in additional tax revenues through FY 2004. An application supporting the accurate collection of tax revenues significantly impacts Iowa citizens, businesses, governmental services, and local communities.

b. Service Improvements

Summarize the extent to which the project or expenditure improves service to Iowa citizens or within State government. Included would be such items as improving the quality of life, reducing the government hassle factor, providing enhanced services, improving work processes, etc.

Response:

Criminal & Juvenile Justice Planning (CJJP) and Department of Corrections (DOC) Service Improvements:

1. The first iteration of the EDW was able to provide answers to all 91 correctional impact statements in FY01 that involved penalty changes. This significantly helped the Legislature predict the revenue impact of altering penalties for 100 different traffic violations that affected 294,000 convictions annually. Previously, no data for any correctional impact statements involving penalty changes for simple misdemeanors or scheduled violations could to be provided (which amounted to 20% of all impact statements in FY00).

2. During FY02, the Justice Data Warehouse was used to provide answers to 55 correctional impact statements, including using juvenile court information to provide an estimate of the impact of a proposed expansion of mandatory juvenile waivers to adult court. Another analysis tracked domestic abuse cases over a 3.5 year period and identified what portion of offenders were later cited for violations of no-contact orders.

3. During the FY03 legislative session, CJJP completed 98 correctional impact statements. Of these, 79 or 81% utilized JDW information. The only impact statement requests not now answerable by the JDW are those involving the definition of new offenses where there is no readily available comparison with existing offenses, civil cases, and some bills affecting agency policies or discretion.

4. During the FY04 legislative session, CJJP completed 65 correctional impact statements, 84% of which used the JDW for information and analysis. Included in the analysis was the impact on the prison population of changing mandatory minimum sentences from 85% to 70%.

5. CJJP staff were able to reduce query and reporting costs from an estimated \$431,459.85 to \$2,770.70 during FY01-FY02 while improving the timeliness and accuracy of the data. These cost savings are replicated each year that the EDW is in operation.

6. The Iowa Department of Corrections (DOC) has been able to move two FTE positions previously used for reports and data entry to other job functions, improving the deployment of resources within the DOC.

7. DOC is able to improve monitoring of fine and restitution payments to the courts by offenders under

community supervision.

8. The DOC and CJJP are able to streamline recidivism research and program evaluations, by linking DOC offender information with court information in the enterprise data warehouse.
9. The DOC saved an estimated 48 hours of staff time per single query of sex offender risk information.
10. The DOC is able to save about 40 staff hours and an estimated \$1,000 per district to compile data for annual reports using the JDW. These savings will be repeated each year.
11. With the use of the JDW, the DOC is able to create reports and make comparisons district by district. Without the JDW, the only way to look at these numbers would be to read each of 8 annual reports, without assurance that the data were comparable.
12. DOC is able to run ad hoc and system reports that they cannot currently run on their operational system. This is due to the complexity of the reports and limitations of the SQL Server platform.

Iowa Department of Revenue (DOR) Service Improvements:

1. Less intrusive to the compliant taxpayer: Through the utilization of multiple internal and external data sources to identify areas of tax non-compliance, DOR has significantly increased data knowledge resulting in the ability to identify the true non-compliant taxpayer and thus, reducing the government hassle factor.
2. Improved process efficiencies: Through the use of data availability, DOR has improved employee workloads and significantly enhanced the data made available to the business users resulting in improved processes and workload efficiencies. A number of labor intensive manual processes including the need to work from paper, manually entering data into other internal systems, and manually tracking audit results and performance have been eliminated through the development of automated interface programs moving data to other legacy systems via the data warehouse.
3. Improved customer response time: Data via the warehouse are made available on-line eliminating the need for employees to manually retrieve hard copies of tax returns. Customer inquiries can be handled immediately without need to retrieve paper documents. Customer response time is now on-line compared to the previous document retrieval process which took an average of 2-3 days response turnaround time.
4. Improved customer correspondence: Data in the warehouse have been made available for merging into correspondence templates. Thus, improving the quality of customer correspondence and eliminating the need for follow-up inquiries from our customers for additional information.
5. Improved Internal Agency Customer Service: Data is now available on-line to the business users who need supporting information to efficiently and accurately perform their daily work activities. This has eliminated tasks such as the retrieval and tracking of paper documents that are performed by others in the agency as well as reduced the number of telephone inquiries to Taxpayer Services and Accounts Receivable staff.
6. Improved External Agency Customer Service: A significant number of audit activities require the review of federal tax return data. Even though this data is provided to DOR as an extract file, the data was not made available to the users until the EDW. Manual requests were done previously creating more work for DOR and the Internal Revenue Service. Additionally, having the data on-line has reduced the information retrieval turnaround time from 2 to 3 weeks to immediate on-line information.

Department of Administrative Services - Service Improvement:

The primary stakeholders and beneficiaries of an integrated criminal justice information system are the citizens of the state. Due to an enhanced level of safety and security, the citizens will enjoy an enhanced standard of living. Additionally, the citizens will benefit from better decisions provided by lawmakers and other decision makers due to access to better decision-making data and statistics. The most significant benefits of an integrated criminal justice information system include: enhancing information sharing between justice agencies, providing complete, secure, real-time data, improving the ability to evaluate

programs and policy decisions, improved data collection for research and analysis, improved safety for the public as well as justice practitioners, ensuring the integrity and security of law enforcement communications, less redundant data entry, enhanced staff efficiency, and reduced recidivism.

c. Citizen Impact

Summarize how the project leads to a more informed citizenry, facilitates accountability, and encourages participatory democracy. If this is an extension of another project, what has been the adopted rate of Iowa's citizens or government employees with the preceding project?

Response:

1. The participating state agencies and their many customers benefit through improved access to data, streamlined processes for gathering and analyzing information, quicker response times, and better use of resources.
2. The legislature can receive more complete, accurate and timely information on the impact of various policies, legislative, or fiscal options.
3. Citizens/Taxpayers - Through the utilization and matching of multiple data sources, DOR has successfully identified areas of tax non-compliance. Benefits include smarter workloads (less intrusive to the compliant taxpayer), enhanced correspondence, improved response times, and increased process efficiencies. The number of contested cases related to this project has been extremely minimal; thus, supporting accuracy and improved services.
4. General fund - The Tax Gap Project has generated \$40,000,000 in tax revenues through FY 2004. DOR projects that the Tax Gap project will generate \$10,000,000 in annual receipts on an ongoing basis.
5. Professional practitioners and tax preparers have been very supportive of Iowa's project to identify areas of non-compliance.
6. Citizens - Benefit through effective management and treatment of offenders to improve public safety and hold offenders accountable (ensuring restitution payments, etc). Other benefits include better use of tax dollars through database decision-making through correctional impact statements. Benefit as additional information from an integrated criminal justice system becomes readily available via an automated process.
7. Offenders - Benefit through increased intervention treatments and give them a better chance for success when returning to society.
8. The public, through access to web-based reports and the media, have more information about the justice system in Iowa.

d. Public Health and/or Safety

Explain requirements or impact on the health and safety of the public.

Response:

Department of Administrative Services

The health and safety of the public and well as the members of Iowa's criminal justice community will be greatly enhanced by an integrated criminal justice information system. As more and better information becomes available to the front line officer on the street the officer will be better prepared to arrest potentially violent offenders in a safer manner thereby protecting himself/herself from harm and getting the offender off the street. Prosecutors will have better information with which to convict offenders. Judges will have more accurate and complete information to aid in sentencing decisions and corrections officials will be better prepared to handle dangerous convicts. All these things combine to keep Iowa communities safe.

[This section to be scored by application evaluator.]

Evaluation (10 Points Maximum)

- Minimally improves Customer Service (0-3 points).
- Moderately improves Customer Service (4-6 points).
- Significantly improves Customer Service (7-10 points).

[This section to be scored by application evaluator.]

Evaluation (15 Points Maximum)

- Minimally directly impacts Iowa citizens (0-5 points).
- Moderately directly impacts Iowa citizens (6-10 points).
- Significantly directly impacts Iowa citizens (11-15 points).

F. Process Reengineering

Provide a pre-project or pre-expenditure (before implementation) description of the impacted system or process. Be sure to include the procedures used to administer the impacted system or process and how citizens interact with the current system.

Response:

Criminal and Juvenile Justice Planning

Data from agencies are collected on numerous systems in numerous formats and are not easily accessible without writing additional interface or reporting programs. Data sharing across agencies is limited or non-existent. Most agencies are limited to creating data extracts and providing those extracts to their service partners. It is common for agencies to store duplicated information with differing data definitions, creating confusion in analyzing data across boundaries. For agencies to accomplish information integration with other agencies, they must engage in normalization and standardization activities with each new partner. The systems and processes in place before the EDW was implemented were based upon separate databases and paper-based data storage mechanisms. Examples follow.

Criminal & Juvenile Justice Planning (CJJP) and Department of Corrections (DOC):

1. Before the EDW, CJJP had 1 FTE spending 5-6 months at 35 hours per week preparing clerk of court data for analysis.
2. Before the EDW, information from the Judicial Branches data system (ICIS) required queries of 100 separate databases to be compiled before a composite, state-level analysis could be performed.
3. Before the EDW, Department of Corrections staff monitored offenders fine and restitution payments via requests to the clerks of court, on an individual offender basis.
4. Before the EDW, Department of Corrections staff and CJJP obtained offender recidivism information and follow-up data for treatment program evaluations via case-by-case look-ups.

Iowa Department of Revenue (DOR):

Prior to implementation of the Enterprise Data Warehouse:

1. Prior to the EDW, areas of non-compliance were manually identified through review and research of internal databases. The EDW now supports automated matching of data from multiple diverse internal and external databases.
2. Prior to the EDW, limited information was available to the business users to support efficiency and accuracy, making it difficult to respond to inquiries without 2 - 3 days delay. The EDW now supports on-line data available to business users.
3. Prior to the EDW, limited data were used to generate potential tax non-compliance leads lists which resulted in taxpayers being contacted who should not have been contacted. This created follow-up inquiries, telephone calls, correspondence, and process inefficiencies. The EDW now supports accurate lead lists and improved services by only contacting those who should be contacted.
4. Prior to the EDW, minimal information was provided on contact letters, resulting in additional follow-up inquiries and frustration. The EDW supports improved correspondence through a merge process of data in the EDW to customer correspondence.

5. Prior to the EDW, audit activities and audit results were manually tracked and logged by business users. Through the EDW, these processes have been automated resulting in timely, consistent, and accurate information in addition to improved efficiency.
6. Prior to the EDW, audit activities were tracked and performed on multiple applications resulting in a duplication of effort and confusing, conflicting information. This project brings together all audit activity performed by the agency.
7. Prior to the EDW, Internal Revenue Service data was exchanged with DOR, but this information was never available to the business users who need the data to do their job. Manual (form) requests were completed and sent to the IRS. In turn, the IRS would photo copy the requested tax return and mail it back to DOR. The EDW provides business users with an on-line view; thus eliminating manual processes, improving efficiency, and customer service.

Iowa Department of Administrative Services (DAS)

Before the EDW there was no single repository to capture and analyze crucial information and data being conveyed via an integrated criminal justice system.

Provide a post-project or post-expenditure (after implementation) description of the impacted system or process. Be sure to include the procedures used to administer the impacted system or process and how citizens will interact with the proposed system. In particular, note if the project or expenditure makes use of information technology in reengineering traditional government processes.

Response:

CJJP and DOC:

1. CJJP was able to eliminate the hand-compilation of clerk of court data as a result of the EDW.
2. Court-based data can be compiled within a few hours of a request, reducing the amount of staff time devoted to data retrieval, as well as CPU time and resources.
3. The Department of Corrections was able to upload key information from the Iowa Corrections Offender Network (ICON) to reduce resource demands in their operational system environment, and perform one-step queries that access data from both ICON and the clerks of court, to support fine/restitution payment monitoring and to streamline program evaluations and recidivism research.

Iowa Department of Revenue (DOR):

4. The EDW serves as a common platform for DOR data interfaces to move data to and from other internal systems. This has eliminated many manual processes, improving employee efficiencies and system accuracies as well as providing data to support management reports and measurements.
5. DOR has moved data from the mainframe to the data warehouse to reduce mainframe storage costs and increase mainframe system performance. We will be exploring the opportunities of moving more data from the mainframe to the warehouse and evaluating the benefits and savings. Mainframe data have to be made available to the users and therefore, purging data from the mainframe applications and still making the data available to business users has always been a technical challenge. With the warehouse, DOR can downsize our integrated mainframe system and provide the purged data to the users through views made available via the warehouse.
6. The data available via the warehouse have eliminated labor intensive, paper producing processes by providing data on-line to business users and managers.

Iowa Department of Administrative Services (DAS)

7. The EDW has been able to capture critical pieces of data and information transmitted via project Kaleidoscope, which is a multi-agency proof of concept related to criminal justice integration. This information from the Department of Corrections, the Department of Public Safety, the Polk County Sheriff's Office and the Polk County Attorney's Office, has provided the CJJP research analysts with new capabilities.

[This section to be scored by application evaluator.]

Evaluation (10 Points Maximum)

- Minimal use of information technology to reengineer government processes (0-3 points).

- Moderate use of information technology to reengineer government processes (4-6 points).
- Significant use of information technology to reengineer government processes (7-10).



G. Timeline

Provide a projected timeline for this project. Include such items as planning, database design, coding, implementation, testing, conversion, parallel installation, and date of final release. Also include the parties responsible for each item.

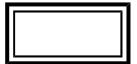
Response:

Building agency-based data warehouses on a common platform with common standards creates an environment where data are readily available to support both intra- and inter-agency information dissemination and sharing activities. Each agency will have the opportunity to build join-use applications available within their own networks independently or through a secure Internet zone established by the Enterprise. While the development, testing, and use of a fully integrated criminal justice system is part of the State's long range plan for information sharing, the use of the EDW is a component of the CJIS initiative which has an immediate application and capability for use. During the development of Iowa's formal CJIS plan, which should be completed next year, the EDW will be considered the cornerstone for the collection and analysis of justice information. It is envisioned that as each component of the justice community becomes integrated that information will be accessed by the EDW for review. Installation of the upgraded machine will occur in the early months of the project. The process of uploading and linking of data from DHS and project Kaleidoscope will occur before the end of the project period. The Department of Revenue continues to enhance the EDW model, utilization, and user access to support the identification of tax noncompliance and the associated tax revenue stream. Additionally, we are expanding user access to support agency goals and strategic plan initiatives.

[This section to be scored by application evaluator.]

Evaluation (5 Points Maximum)

- The timeline contains several problem areas (0-2 points)
- The timeline seems reasonable with few problem areas (3-4 points)
- The timeline seems reasonable with no problem areas (5)



H. Funding Requirements

On a fiscal year basis, enter the estimated cost by funding source: Be sure to include developmental costs and ongoing costs, such as those for hosting the site, maintenance, upgrades, ...

	FY06		FY07		FY08	
	Cost(\$)	% Total Cost	Cost(\$)	% Total Cost	Cost (\$)	% Total Cost
State General Fund	\$0	0%	\$0	0%	\$0	0%
Pooled Tech. Fund /IowAccess Fund	\$658,623	100%	\$789,397	100%	\$0	0%
Federal Funds	\$0	0%	\$0	0%	\$0	0%
Local Gov. Funds	\$0	0%	\$0	0%	\$0	0%
Grant or Private Funds	\$0	0%	\$0	0%	\$0	0%
Other Funds (Specify)	\$0	0%	\$0	0%	\$0	0%
Total Project Cost	\$658,623	100%	\$789,397	100%	\$0	100%
Non-Pooled Tech. Total	\$0	0%	\$0	0%	\$0	0%

[This section to be scored by application evaluator.]

Evaluation (10 Points Maximum)

- The funding request contains questionable items (0-3 points)
- The funding request seems reasonable with few questionable items (4-6 points)
- The funding request seems reasonable with no problem areas (7-10)

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I. Scope

Is this project the first part of a future, larger project?

☒ YES (If "YES", explain.) ☐ NO, it is a stand-alone project.

Explanation:

This project established the basis for developing and growing data warehouse activities within State Government. The program continues to grow as new users begin data warehouse activities and current users expand their activities.

The Justice Data Warehouse will be the cornerstone of Iowa's criminal justice integration initiative in the area of information gathering, statistical analysis, report generation, policy development and program evaluation. The information gathered by the Justice Data Warehouse will provide valuable analytical information that will help guide and shape Iowa's move towards an integrated criminal justice environment.

The Department of Revenue continues to enhance the EDW model, utilization, and user access to support the identification of tax noncompliance and the associated tax revenue stream. Additionally, we are expanding user access to support agency goals and strategic plan initiatives.

Is this project a continuation of a previously begun project?

☒ YES (If "YES", explain.)

Explanation:

The current Teradata data warehouse supports applications for three state departments. It is anticipated that more agencies will participate in this project, adding data in FY05 and FY06. As data warehousing grows, the ability of the data warehouse to link agency data for improved decision support will be greatly expanded. The Department of Corrections is planning on adding prison institution data, including medical data during FY05, which will also include the Board of Parole data. The Department of Public Health is looking to move forward with a pilot of historical Substance Abuse Reporting System (SARS) data that will include test linkages with community-based corrections information already on the Teradata data warehouse. The Department of Human Services is working with CJJP to migrate child welfare data to the warehouse. The Enterprise has created the necessary knowledge and talent base to bring agencies onto the warehouse quickly and efficiently. The long-term goal is to easily access data across all agencies and perform longitudinal studies for increased service delivery decreased information analysis costs, and better decision- making.

The Enterprise Data Warehouse consists of a NCR World Mark Teradata platform managed by the State of Iowa's Information Technology Enterprise (ITE). The Teradata was installed in December of 1999 and loading of production data was started in January 2000. Final standards for data and metadata were reviewed and established. Business Objects was selected as the query and reporting tool standard for the enterprise data warehouse. ITE is responsible for the support and management of the platforms. ITE established a small development capacity to support bringing agencies onto the warehouse. State agencies can select their own vendor to assess and model their data, use ITE development services, or a combination of both to minimize costs. Initially, three agencies collaborated together to purchase the platform.

The Courts, working in conjunction with the Department of Human Rights, Criminal and Juvenile Justice Planning Division, have loaded adult and juvenile court case processing data from Iowa's 99 counties. This covers all charges, sentences, judges rulings, fines, etc. The Justice Data Warehouse is used for numerous

policy and planning decisions affecting adult and juvenile offenders.

Additionally, The Department of Corrections has now added over 900 data elements from their Iowa Correctional Offender Network (ICON) system after the pilot created in FY01 was a demonstrated success.

The Department of Revenue has developed and implemented a Tax Gap program which has generated \$40,000,000 through FY 2004 and is expected to generate at least \$10,000,000 per year on an ongoing basis. Additional data sources will be added to the EDW as we enhance our efforts to promote voluntary compliance.

The Justice Data Warehouse has been a significant component of Iowa's justice integration initiative since Iowa began to explore the environment to integrate justice systems. The JDW is now able to accept information from project Kaleidoscope, which is a multi-jurisdictional proof-of-concept intended to demonstrate the value, feasibility, and utility of integrating disparate information systems. This has established the groundwork for future information analysis as more information becomes available to the JDW through a fully integrated system.

This project calls for an upgrade from the WorldMark 4800 to the WorldMark 4980. The upgrade will increase the storage and processing capacity of the warehouse, as well as provide continued support for the hardware.

J. Source of Funds

On a fiscal year basis, how much of the total project cost (\$ amount and %) would be absorbed by your agency from non-Pooled Technology and/or IOWAccess funds? If desired, provide additional comment / response below.

Response:

0%

[This section to be scored by application evaluator.]

Evaluation (5 Points Maximum)

- 0% (0 points)
- 1%-12% (1 point)
- 13%-25% (2 points)
- 25%-38% (3 points)
- 39%-50% (4 points)
- Over 50% (5 points)

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Section II: Financial Analysis

A. Project Budget Table

It is necessary to estimate and assign a useful life figure to each cost identified in the project budget.

Useful life is the amount of time that project related equipment, products, or services are utilized before they are updated or replaced. In general, the useful life of hardware is three (3) years and the useful life of software is four (4) years. Depending upon the nature of the expense, the useful life for other project costs will vary between one (1) and four (4) years. On an exception basis, the useful life of individual project elements or the project as a whole may exceed four (4) years. Additionally, the ROI calculation must include all new annual ongoing costs that are project related.

The Total Annual Prorated Cost (State Share) will be calculated based on the following equation:

$$\left[\left(\frac{\text{Budget Amount}}{\text{Useful Life}} \right) \times \% \text{ State Share} \right] + (\text{Annual Ongoing Cost} \times \% \text{ State Share}) = \text{Annual Prorated Cost}$$

Budget Line Items	Budget Amount (1st Year Cost)	Useful Life (Years)	% State Share	Annual Ongoing Cost (After 1st Year)	% State Share	Annual Prorated Cost
Agency Staff	\$232,688	1	100.00%	\$245,740	100.00%	\$478,428
Software	\$81,989	2	100.00%	\$209,711	100.00%	\$250,706
Hardware	\$310,146	5	100.00%	\$310,146	100.00%	\$372,175
Training	\$10,000	4	100.00%	\$0	0.00%	\$2,500
Facilities	\$0	1	0.00%	\$0	0.00%	\$0
Professional Services	\$8,800	1	100.00%	\$8,800	100.00%	\$17,600
ITD Services	\$0	1	0.00%	\$0	0.00%	\$0
Supplies, Maint, etc.	\$0	1	0.00%	\$0	0.00%	\$0
Other	\$15,000	1	100.00%	\$15,000	100.00%	\$30,000
Totals	\$658,623	---	---	\$789,397	---	\$1,151,409

B. Spending Plan

Explain how the funds will be allocated.

Response:

Funds are allocated to each participating agency based on utilization.

C. Tangible and/or Intangible Benefits

Respond to the following and transfer data to the ROI Financial Worksheet as necessary:

1. Annual Pre-Project Cost - This section should be completed only if state government operations costs are expected to be reduced as a result of project implementation. **Quantify actual state government direct and indirect costs** (personnel, support, equipment, etc.) associated with the activity, system or process prior to project implementation.

Describe Annual Pre-Project Cost:

CJJP is required to provide analysis to various groups, specifically to the Legislature. Prior to the data warehouse, CJJP expended large amounts of personnel time to generate the answers to these questions. Annual, CJJP estimates they save approximately \$200,000 in personnel costs to answer the questions. Likewise, with the Department of Corrections data integrated into the data warehouse, it is anticipated that DOC will save approximately \$200,000 in personnel costs related to providing information. In addition, prior to the data warehouse there were many questions that were impossible to answer.

Quantify Annual Pre-Project Cost:

	State Total
FTE Cost (salary plus benefits):	\$430,000.00
Support Cost (i.e. office supplies, telephone, pagers, travel, etc.):	\$0.00
Other Cost (expense items other than FTEs & support costs, i.e. indirect costs if applicable, etc.):	\$0.00
Total Annual Pre-Project Cost:	\$430,000.00

2. Annual Post-Project Cost - This section should be completed only if state government operations costs are expected to be reduced as a result of project implementation. **Quantify actual state government direct and indirect costs** (personnel, support, equipment, etc.) associated with the activity, system or process after project implementation.

Describe Annual Post-Project Cost:

The above costs are not the full costs involved with providing information to users and user-groups such as the Legislature. However, they represent the personnel cost savings related to researching and providing the answers.

Quantify Annual Post-Project Cost:

	State Total
FTE Cost (salary plus benefits):	\$0.00
Support Cost (i.e. office supplies, telephone, pagers, travel, etc.):	\$0.00
Other Cost (expense items other than FTEs & support costs, i.e. indirect costs if applicable, etc.):	\$0.00
Total Annual Post-Project Cost:	\$0.00

3. Citizen Benefit - Quantify the estimated annual value of the project to Iowa citizens. This includes the "hard cost" value of avoiding expenses ("hidden taxes") related to conducting business with State government. These expenses may be of a personal or business nature. They could be related to transportation, the time expended on or waiting for the manual processing of governmental paperwork such as licenses or applications, taking time off work, mailing, or other similar expenses. As a "rule of thumb," use a value of \$10 per hour for citizen time.

Describe savings justification:

Transaction Savings

Number of annual online transactions:	0
Hours saved/transaction:	0
Number of Citizens affected:	0
Value of Citizen Hour	0
Total Transaction Savings:	\$0
Other Savings (Describe)	\$0
Total Savings:	\$0

4. Opportunity Value/Risk or Loss avoidance - Quantify the estimated annual non-operations benefit to State government. This could include such items as qualifying for additional matching funds, avoiding the loss of matching funds, avoiding program penalties/sanctions or interest charges, avoiding risks to health/security/safety, avoiding the consequences of not complying with State or Federal laws, providing enhanced services, avoiding the consequences of not complying with enterprise technology standards, etc.

Response:

Avoiding the identification of tax noncompliance resulting in a loss of at least \$10,000,000 in tax revenues

per year.

Avoiding the consequences of not complying with Internal Revenue Service need and use requirements as well as potential security requirements. This would result in DOR's non-compliance with the IRS/DOR information exchange agreement and DOR's ability to obtain IRS data which would significantly reduce the amount of state tax revenues resulting from data matches to IRS data.

Department of Administrative Services -

Approximately \$1.9 million in federal and other non-state funds have been invested in Iowa's move towards an integrated criminal justice information system. The failure to commit additional resources towards this effort would result in a loss of momentum with the initiative as well as negate the previous victories and successes that the project has enjoyed.

CJJP/DOC - Better information to decision makers - approximately \$215,000 per year. It is anticipated that the DOC will save at least this much, and likely more, once the project under the current ROI is completed.

5. Benefits Not Readily Quantifiable - List and summarize the overall non-quantifiable benefits (i.e., IT innovation, unique system application, utilization of new technology, hidden taxes, improving the quality of life, reducing the government hassle factor, meeting a strategic goal, etc.).

Response:

Data warehousing, within the State, is a newer technology. Over the last several years, the agencies that have begun projects have greatly expanded their activities. As the Government moves toward data based decision-making, integrating data across systems for analysis, trending, and tracking are vital. DOR and CJJP have pioneered Teradata data warehouse activities. These activities show both a large quantifiable return while also showing tremendous cost recouping opportunities and other information cost reductions associated with integrated data and data mining activities. Integrated information is extremely valuable; it allows users to look at more than just the surface of an issue. The most important aspect of data warehousing is its central role as the enterprise decision support system. Additionally, significant savings to the state will be achieved through reduced recidivism rates, decreased crime victim and property loss costs, lawsuit avoidance, and prosecution costs.

CJJP was presented the 2001 National Award for Technical Innovation by The Justice Research and Statistics Association for its Justice Data Warehouse Project.

The DOR Tax Gap Program was presented the 2003 Best Practices Award by The Data Warehousing Institute. Award selection was based on innovation, business impact, ability to share with others, project scope, and project maturity.

ROI Financial Worksheet	
A. Total Annual Pre-Project cost (State Share from Section II C1):	\$430,000
B. Total Annual Post-Project cost (State Share from Section II C2):	\$0
State Government Benefit (= A-B):	\$430,000
Annual Benefit Summary:	\$430,000
State Government Benefit:	\$430,000
Citizen Benefit:	\$0
Opportunity Value or Risk/Loss Avoidance Benefit:	\$10,000,000
C. Total Annual Project Benefit:	\$10,430,000
D. Annual Prorated Cost (From Budget Table):	\$1,151,409
Benefit / Cost Ratio: (C/D) =	9.06
Return On Investment (ROI): ((C-D) / Requested Project Funds) * 100 =	1,408.79%

[This section to be scored by application evaluator.]

Evaluation (25 Points Maximum)

- The financial analysis contains several questionable entries and provides minimal financial benefit to citizens (0-8 points).
- The financial analysis seems reasonable with few questionable entries and provides a moderate financial benefit to citizens (9-16 points).
- The financial analysis seems reasonable with no problem areas and provides maximum financial benefit to citizens (17-25).

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Note: For projects where no State Government Benefit, Citizen Benefit, or Opportunity Value or Risk/Loss Avoidance Benefit is created due to the nature of the project, the Benefit/Cost Ratio and Return on Investment values are set to Zero.

Appendix A. Auditable Outcome Measures

For each of the following categories, list the auditable metrics for success after implementation and identify how they will be measured.

1. Improved customer service

A. CJJP Data Warehouse

1. % of data requests complete: % that could have been completed prior to JDW implementation (Staff evaluation)
2. Average completion time for correctional impact statements (Staff time studies)
3. Average completion time of district and statewide community-based corrections annual reports (Staff time studies)

B. Department of Revenue

1. Reduce the number of revised billings by 15%; measurement accomplished through pre and post EDW reports on revised audits.
2. Reduce the number of contested tax billings by 5%; measurement accomplished through tracking and reporting of contested cases.
3. Reduce the number of manual requests for information from the Internal Revenue Service by 75%; measurement accomplished through tracking of manual requests.
4. Improve the turn around time on taxpayer responses; measurement accomplished through correspondence tracking reports.

C. Department of Administrative Services

The criminal justice community will be able to provide a greatly enhanced level of customer service because the enhanced flow of timely and accurate information from an integrated system will provide for faster, more efficient action and decision-making on the part of justice practitioners. These actions will, in turn, increase public safety and increase the productivity and accountability of the criminal justice system. This can be measured by monitoring the crimes solved statistics, police response times, and incarceration rates.

2. Citizen impact

A. Justice Data Warehouse

Ratio of potential financial impact of proposed legislation to estimated financial impact of enacted

legislation.

B. Department of Revenue Data Warehouse

Reduce the number of contacts made to compliant taxpayers by 5%.

Through segmentation analysis, identify at least two areas of non-compliance and establish taxpayer education programs.

C. Department of Administrative Services

By providing more accurate and timely information to all members of the justice community in a more streamlined and efficient manner the citizens of the state will enjoy a safer environment in which to live and work through a greatly improved system of law enforcement and criminal justice. The increase level of public safety will be determined by monitoring statistics in the Uniform Crime Report to see if reportable crime rates decrease. Additionally, by providing the ability for the Department of Corrections to provide critical information to the Parole Board there will be a decrease in the recidivism rate as only the safest offenders are released back into society. This reduction in recidivism rate translates into a safer environment for Iowans.

3. Cost Savings

A. Justice Data Warehouse

1. Ratio of staff cost per query pre and post warehouse (staff time studies)
2. Ratio of staff cost per community-based corrections annual reports pre and post warehouse (staff time studies)

B. Department of Revenue Data Warehouse

1. Improve auditor and examiner time per audit; efficiency measurement accomplished through pre and post EDW time activity reports.
2. Increase the return on investment for audit and examination activities; measurement accomplished through pre and post EDW ROI reports.

Department of Administrative Services

Cost savings can be realized through cost avoidance as lawsuits or potential lawsuits are avoided as the criminal justice system becomes better informed, more responsive, and more accountable.

4. Project reengineering

These metrics are determined for each project during the planning phase for accomplishing data warehouse activities.

Department of Administrative Services

This project will result in an entirely new way of sending and receiving information between the various agencies within the justice community. It will also establish a new method for storing, warehousing, and retrieving criminal justice documents, images and transactions. This integration of information represents a new business process for the justice community and is a dramatic change from the old method of maintaining information in independent systems that are incapable of communicating with each other. This can be measured by documenting the increase in the number of integrated systems that develop across the enterprise.

5. Source of funds (Budget %)

Planned and Tracked at the Enterprise level for enterprise activities. Managed at the agency level for agency activities.

6. Tangible/Intangible benefits

Increase in employee job satisfaction; surveys will be conducted to determine employee satisfaction with product deliverables.

Ability to evaluate programs and improve outcomes to lower recidivism rates and reduce prison capacity requirements.

Participating in the Enterprise data warehouse to increase information sharing across agencies and target services more effectively.

Increased employee job satisfaction by providing the business users with the data needed to perform their job. DOR has regularly communicated with employees to receive input and feedback. Business users are enthused and extremely positive about the improvements and benefits this project has provided them.

Creating a technical support environment for employees to rapidly have access to data to improve their ability to deliver services and increase their morale.

Ability to conduct longitudinal studies across agencies.

Using data warehouse technology has improved the ability to anticipate future costs; improved prison population projections due to knowledge of up-to-the-month trends in criminal case filings and incarceration rates; the development of better responses to crime and criminal behavior; the passage of improved sentencing laws; improved allocation of resources for the justice system; and decision support to ensure fair and equitable treatment of offenders. Another focus of the data warehouse is to avoid duplicate data entry, improve staff efficiency, and provide the most accurate information available to staff and management. It is estimated that the data warehouse will have cost avoidance savings across Iowa government of between \$1 million and \$2 million per year.

The overall benefit of this project is related to the increasing demand for reliable information with which to describe and assess the operations, clientele, and practices of Iowa's services. The previous years of operation have proven that this initiative will result in many benefits stemming from informed decision-making, trend analysis, service delivery and agency cooperation across the enterprise.

Department of Administrative Services

Tangible benefits: improved safety for criminal justice practitioners and the general public; better customer-oriented service for justice information system users; increased cost avoidance through reduced litigation; better quality of product; more efficient, effective, and timely delivery of services; more accurate information; data will be captured at the originating point and will be leveraged many times.

Intangible benefits: reduction or elimination of adversarial relationships and environments among criminal justice agencies; increased level of understanding among criminal justice agencies regarding the information they use and need; reduction or elimination of turf barriers among criminal justice agencies; increased public confidence; enhance the cooperative relationship between the state and local jurisdictions and the state and local governments.